

CITY FACILITIES ARCHITECTURAL SERVICES DIVISION

October 31, 2008

#### ADDENDUM NO. 1 FOR THE PAL STADIUM IMPROVEMENTS-ACCESSIBILITY

Notice is hereby given that the following revisions, clarification, additions and/or deletions are hereby made of, and incorporated into plans and specifications for the PAL STADIUM IMPROVEMENTS-ACCESSIBILITY.

#### **RESPONSES TO QUESTIONS FROM PRE-BID MEETING:**

#### Question #1:

What are the requirements for keeping facilities operational during the Work? Answer #1:

<u>See Section 01100, Paragraph 1.4 Work Phases</u> defines the requirements for keeping the Stadium Restrooms operational. <u>Paragraph 1.5 Work Restrictions</u> defines the parameters for keeping the overall operations functional. Procedures are provided for approval of temporary restroom facilities. See Specification clarification shown in **bold**:

### Paragraph 1.5.A.2.

2. The Works shall not impede the PAL Activities on the site. Work hours and days shall accommodate the activities scheduled for these fields such that temporary restroom facilities may be provided with 10 calendar day notice and written approval for the City of San Jose Department of Public Works Project Manager, When temporary restroom facilities are approved, the uses will be reflected in the project schedule such that it is clear how long the use is required. Approved use is anticipated not to exceed 14 calendar days. Temporary facilities will match or exceed current facilities.

#### Paragraph 1.8.B. Owner Occupancy: Allow access

- B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits established at Pre-bid conference. Do not disturb portions of the Site beyond the areas in which the Work is indicated.
- 1. Owner Occupancy: Allow access for the Owner and any agents of the Owner. The public shall be prevented from entering the project site until the Owner occupies the Site. The public will be allowed access through a safe passage, approved by

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the Owner's Representative, to functioning restrooms at each location. The public shall be prevented from entering construction activity areas within the project site until the Owner occupies the Site. It is understood that the functioning restrooms may be located within the construction activity areas and a work-around may be required. This is relevant for evenings as well as daytime, as many activities requiring restrooms are during late afternoon and evening hours.

#### Question #2:

#### How are ceramic walls to be repaired?

#### Answer #2

The documents and specifications indicate repair and replacement requirements. Tile replacement and new walls in the restrooms are not expected to match the existing color or tile. Colors will be selected from manufacture's standards to create an accent element. See Attachment 1 for ceramic tile detail at inside corner.

#### Question #3:

#### What space is available for Contractor at the site?

#### Answer #3:

Attachment 2 shows several locations where the Contractor may establish a secured enclosure. Parking during normal working hours is also located. Parking at all other times must be approved in writing by the Owner's Representative five (5) calendar days in advance.

#### Question #4:

#### Is there a Hazardous Materials Report?

#### Answer #4:

The City will obtain a Hazardous Materials Report prior to the start of Work. If encountered, Hazardous Materials removal will be done by Others.

#### Question #5:

#### Are their drawings or information regarding the under-slab utilities?

#### Answer #5.

The City does not have Record Drawings of the restrooms. Attachment 3 provides the record drawings for the Snack Shacks.

#### Question #6:

#### What are the hours of Operation of the Snack Shacks?

#### Answer #6:

The Snack Shacks operate when there is an event in the adjoining field. Typically the fields are used in the late afternoon and evening. See Attachment 4 for Schedule.

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#### Question #7:

#### What is the access path to the Softball restrooms?

#### Answer #7:

See Attachment 2. Construction vehicles and equipment shall minimize the impact to the access area. Restoration requirements are per the Project Manual.

#### Ouestion #8:

# Are the wood shingles at the Softball restroom/snack shack building to be replaced? Answer #8:

Yes, See SPECIFICATIONS below:

#### Ouestion #9:

#### Are the exteriors of the buildings to be repainted?

#### Answer #9:

The Stadium building is to be repainted in like color and finish.

The Softball building CMU is not to be painted. The CMU shall be power-washed and sealed. The roof trim, supports, soffit etc. are to be painted; colors selected from Manufactures standards.

#### Question #10:

#### Is area under freeway available for Contractor?

#### Answer #10:

This is Caltrans ROW. Contractor may pursue access and use at their own cost and discretion.

#### Question #11:

#### What is the access path for the modular restroom?

#### Answer #11:

Attachment 2 shows the anticipated path for the modular restroom. The container behind the building will be removed. The container by the gate will allow a minimum of 15 feet clearance through the fence. Contractor shall remove current fence and gate to accommodate installation of modular. Contractor shall install new fence to next further post and install new gate and corner posts.

#### Question #12:

#### **Clarify CMU Patching:**

#### Answer #12:

Yes, clean and grind for patching. See Section 09300 for Ceramic Tile Clean and Grind. Patching with 'covering ceramic tile' is acceptable if compatible with installation of toilet partitions and complies with sanitary code such as at cove base.

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#### Question #13:

#### Is the paint on ceramic tile to be removed?

Answer #13:

Yes. See Section 09300 for the removal of paint on ceramic tile.

#### Question #14:

#### **Provide Finish Schedule**

Answer #14:

#### PAL Stadium Improvements - Accessibility

#### **Finish Schedule**

Building 1@ Stadium

Interior

Remove paint per Section 09033. Note

Walls requirement for test panels

See Epoxy Flooring Section 09672, color selected

Floor from manufacturers standards

Paint per Section 09900, color selected from

Ceiling and structure manufacturers standards. Color to match existing.

Paint per Section 09900, color selected from

manufacturers standards. Color to match existing. Doors, Frames, Louvers etc

Repaint per Section 01731 Cutting and Patching. General repainting is not in this scope of work.

Exterior

Building 2 @ Ballfields

Interior

Walls Steam clean; Patch per Section 01731

See Epoxy Flooring Section 09672, color selected

from manufacturers standards Floor

Paint per Section 09900, color selected from

Ceiling and structure

manufacturers standards. Color to match existing.

Exterior

Walls

Steam clean

Paint per Section 09900, color selected from manufacturers standards. Maximum 2 colors.

Trim, doors and downspouts etc

Paint per Section 09900, color selected from

Soffit and structure

manufacturers standards. Maximum 2 colors.

Asphalt Shingles: Grey/lt.Brown/dk Brown blend,

Roof selected from manufacturers standards

Modular Restroom

Per Section 13121 Interior

Paint per Section 09900, color selected from

manufacturers standards; Color to match

Exterior adjoining Restroom 1

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#### Question #15:

#### What is the replacement panel material at the new doors?

Answer #15:

Hollow metal panel, same as door.

#### **DRAWINGS:**

**NOTE:** All revisions to the drawing are clouded and indicated as delta 1.

- 1. Clarification on sheet A-5 below:
  - Add Detail 2.1 "New ceramic tile wall to existing CMU ceramic wall"
- 2. Clarification on sheet A1.0 below:
  - Add Detail 4 "Construction Access and Laydown Diagram"

#### **SPECIFICATIONS:**

1. Add Specification section 07311 Asphalt Shingles. See Attachment 5.

#### **ATTACHMENTS:**

- 1. Detail 2.1/A5.0
- 2. Detail 4/A1.0
- 3. Record Drawings of Snack Shacks
- 4. PAL Schedule
- 5. Specification Section 07311.

#### **END OF BID PACKAGE MODIFICATIONS**

To: All Plan Holders for the PAL Stadium Improvements-Accessibility Subject: ADDENDUM NO. 1

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#### **INSTRUCTIONS TO BIDDER:**

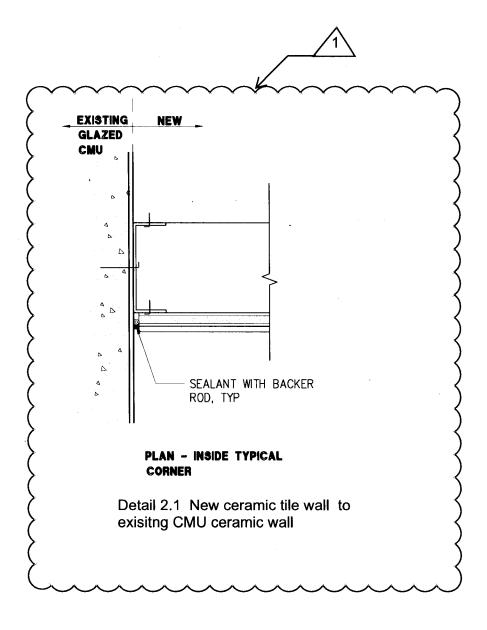
The bidder must sign this addendum in the space provided below and return one signed copy of this sheet with the bid. Failure to return this signed copy with the bid documents shall not relieve the bidder of the obligation to include this addendum with the bid proposal.

Bidder's Name

Date

Signature & Title of Bidder

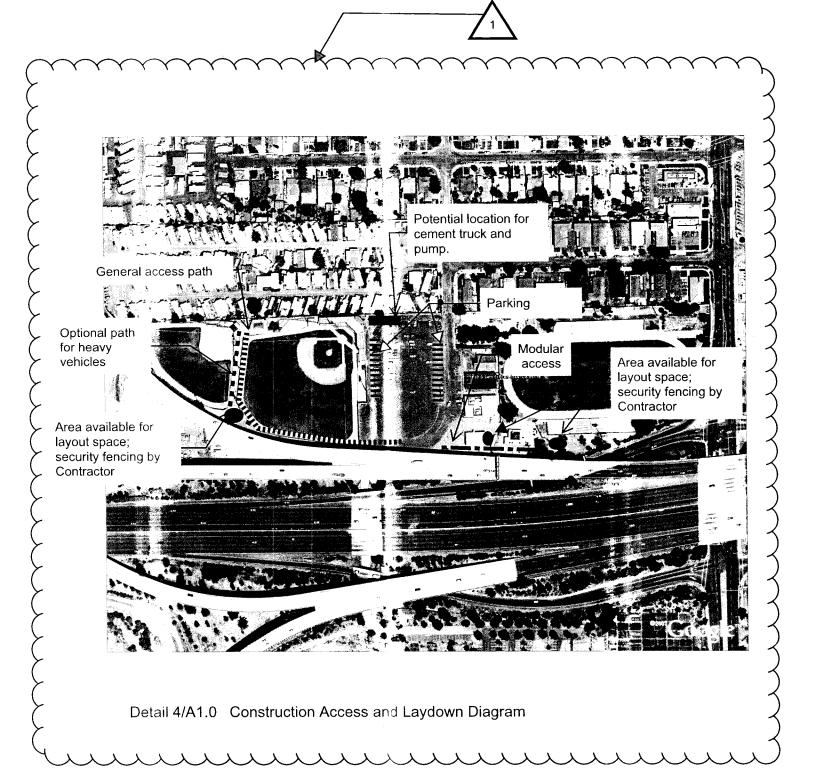
APPROVED BY:



#### Steinberg Architects 60 Pierce Avenue San Jose CA 95110 project no: 08-020 date: October 30, 2008 architect Police Activities League Stadium Improvement Addendum 1 CMM checked by: drawn by: AD1-A5.0-01 date issue

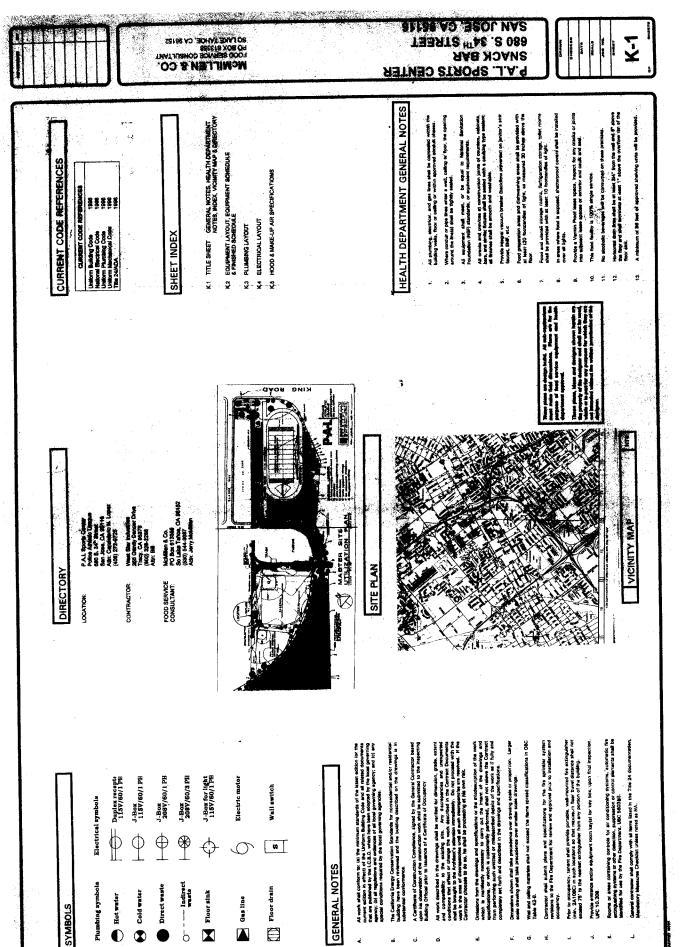
**STEINBERG** ARCHITECTS

2/A5.0



# Addendum 1 architect Steinberg Architects 60 Pierce A Zenue San Jose CA 95110 Fev. dai- issue Steinberg Architects 60 Pierce A Zenue San Jose CA 95110 Police Activities League Stadium Improvement Police Activities League Stadium Improvement Fev. dai- issue Police Activities League Stadium Improvement Fev. dai- issue Police Activities League Stadium Improvement Fev. dai- issue

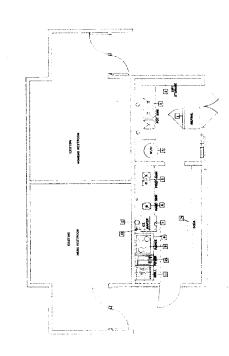
**STEINBERG** ARCHITECTS



X

SAN JOSE, CA 95116	
680 S. 34 <sup>™</sup> STREET	S/Oil
SNACK BAR	4 / 20 and
P.A.L. SPORTS CENTER	

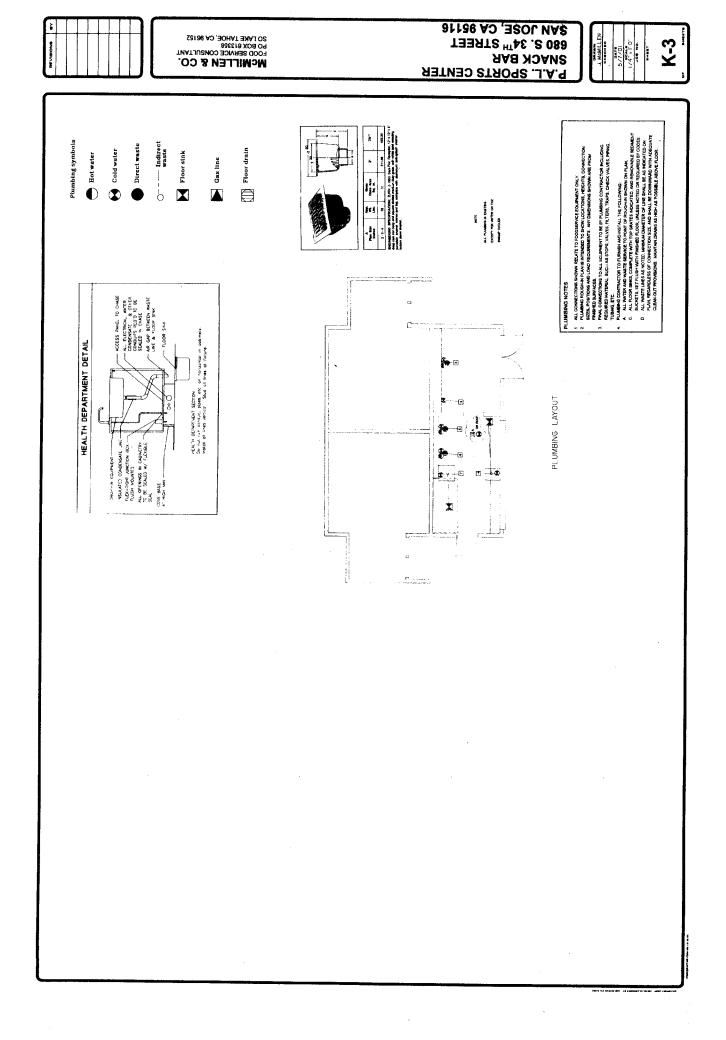
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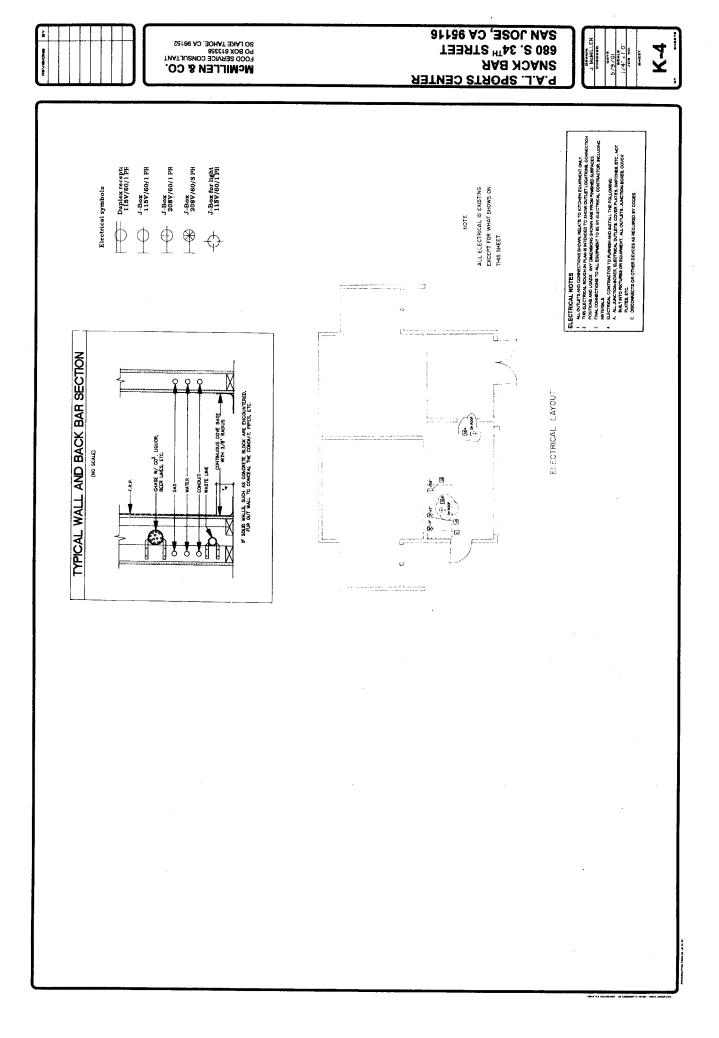


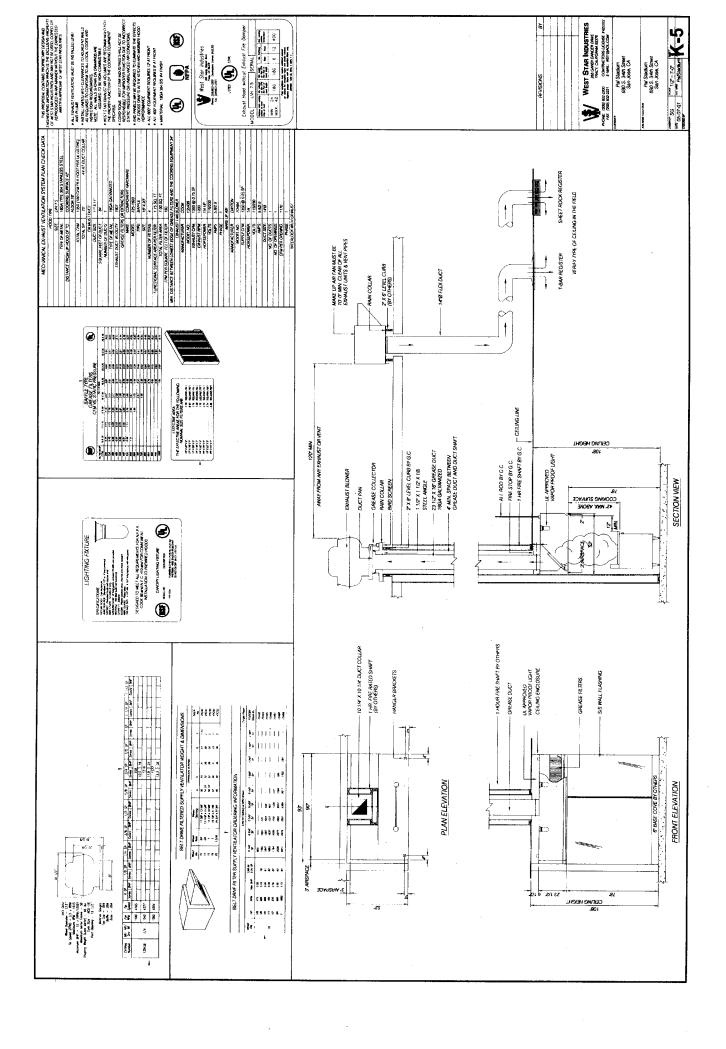
EQUIPMENT LAYOUT

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-	1 los DRY STORAGE	METRO						EXISTING
, .	1 ea POT SINK	WEST STAR #3NSF-1717-2018		-		52	1/2,	EXISTING
	1 84 HOT WATER HEATER	EXISTING	520				3/4.	EXISTING
	1 ca DROP-IN PREP SINK	ADVANCE #D1-2-208		-	_	2	-21	EXISTING
		ADVANCE #D1-148		-	_	1/2	1/2	EXISTING
	1 as (CE MAKER (EXISTING)	MANITOWOC #0270	120		on	L	2/1	-
	1	-			-			NEW
		_	220					EXISTING
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	1 mg UL HOOD 76" X 45"	WESTSTAR Model LVH (LIGHTS)	52		6	L	-	NEW
. ⊻	1 lot MAKE-UP AIR		82	<u>.</u>	15		211	ON ROOF (new)
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, -		PYRO CHEM				-		
	SODA DISPENSER	EXISTING	5					TO FLOOR









# PAL Stadium Improvements - Accessibility Project

# **Schedule of Activities**

## **Football Field**

Notre Dame Soccer

October 20th 2008- January 2009

Weekday afternoons 3 pm to 6 pm

Notre Dame Field Hockey

January 2009- March 2009

Weekday afternoons 3 pm to 6 pm

**PAL Soccer** 

October - November 1

Weekday afternoons 3 pm to 6 pm

PAL Football

October – Dec 10<sup>th</sup>

Weekday afternoons 3 pm to 6 pm

Vietnamese Festival

January 2009

Weekend only

#### **Baseball Fields**

Fall league

Ends November 1<sup>st</sup>

Weekday afternoons 3 pm to 6 pm

Baseball season begins

March 14<sup>th</sup> 2009 thru June 2009 small field

Tues- Sat

Weekday afternoons 3 pm to 6 pm

Baseball season begins

April 1st 2009 – June 2009 large field

Tue- Sat

Weekday afternoons 3 pm to 6 pm

Softball Notre Dame Small field

March 2009 thru June 2009

Weekday afternoons 3 pm to 6 pm

San Jose State Tournament

March 13<sup>th</sup>- 15<sup>th</sup> 2009

All Day, no site access permitted

#### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Granular surfaced laminated asphalt shingle roofing.
- B. Moisture shedding underlayment and valley protection.
- C. Associated metal flashings.

#### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Section 07591 Roof Patching.
- C. Division 15 Mechanical: Mechanical and plumbing work projecting through roof.
- D. Division 16 Electrical: Electrical work projecting through roof.

#### 1.3 REFERENCES

- A. ASTM A653 Specification for Sheet Steel, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- B. ASTM B32 Specification for Solder Metal.
- C. ASTM B749 Specification for Lead and Lead Alloy Strip, Sheet, and Plate.
- D. ASTM D226 Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
- E. ASTM D3018 Specification for Class A Asphalt Shingles Surfaces with Mineral Granules.
- E. ASTM D3161 Test Method for Wind Resistance for Asphalt Shingles.
- F. ASTM D3462 Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
- G. ASTM D4586 Specification for Asphalt Roof Cement, Asbestos Free.
- H. NRCA National Roofing Contractors Association "Steep Roofing Manual."
- I. CBC California Building Code, 2007 edition.
- UBC Standard 15-2 Test Standard for Determining the Fire Redundancy of Roof Assemblies.

**ASPHALT SHINGLES** 

Section 07311-2

#### 1.4 SYSTEM DESCRIPTION

A. Asphalt Shingle Roofing: Laminated asphalt shingles installed with closed cut valleys and manufacturer's special section hip and ridge shingles over roofing underlayment over nailable roof decking over structural metal deck. Nailable roof decking and structural metal deck are specified under separate sections.

#### 1.5 SUBMITTALS

- A. Shop Drawings: Indicate metal flashings, jointing methods and locations, fastening methods and locations, and installation details.
- B. Product Data: Provide data indicating roofing materials and roofing accessory materials characteristics, performance criteria and limitations. Submit copy of manufacturer's standard warranties with product data submittal.
- C. Samples: Submit full-sized samples of each type shingle illustrating color, finish texture and pattern.
- D. Manufacturer's Installation Instructions: Submit published instructions that indicate preparation required and installation procedures.

#### 1.6 QUALITY ASSURANCE

- A. Perform work in accordance with NRCA Steep Roofing Manual.
- B. Maintain copy of manufacturer's application instructions on job site.

#### 1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturer of laminated asphalt shingles with minimum 25 years document experience and capacity to manufacture primary roofing products including shingles, underlayment and leak barrier.
- B. Installer: Company specializing in installation of laminated asphalt shingles with minimum 5 years documented experience and approved by manufacturer for installation of roofing products to installed under this section.

#### 1.8 REGULATORY REQUIREMENTS

- A. Comply with requirements of UBC Chapter 15 except where more stringent requirements are specified.
  - 1. Roofing Classification: Class A when tested in accordance with UBC Standard 15-2.
  - 2. Installation: Comply with CBC Section 1507.5 and CBC Table 15-B-1.
  - 3. Roofing Material Fasteners: CBC Section 1507.1.1.1.
  - 4. Identification of Roofing Materials: Comply with requirements of CBC Section 1507.2.

#### 1.9 REGULATORY REQUIREMENTS

- A. Deliver products to site, store, handle and protect in accordance with manufacturer's instructions and recommendations.
- B. Deliver products in manufacturer's unopened labeled packaging; store in unopened labeled packaging until products are ready for installation.
- C. Store products in covered ventilated area at temperature not more than 110 degrees F; do not store near steam pipes, radiators or in direct sunlight.
- D. Store bundles on flat surface; do not exceed manufacturer's recommended maximum stacking height. Store rolls on end.
- E. Store and dispose of solvent-based materials in accordance with governmental regulations.
- F. Handle shingles carefully to minimize breakage in cold weather and edge damage in hot weather.
- G. Avoid dropping bundles on edge.
  - 1. Separate shingles carefully; do not "break" over ridge or other bundles.
  - 2. Avoid scuffing surfacing.

#### 1.10 ENVIRONMENTAL REQUIREMENTS

A. Do not install shingle roofing unless existing and forecasted weather conditions permit work to be performed in accordance with manufacturer's recommendations.

#### 1.11 COORDINATION

A. Coordinate installation of asphalt shingle roofing and related flashing with installation of sheet metal gutters specified under Section 07625 - Gutters and Downspouts.

#### 1.12 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard lifetime limited transferable warranty against defects in materials.
- B. Applicator's Warranty: Provide applicator's warranty for the completed work of this section to remain weathertight and otherwise free from defects from period of 3 years from date of acceptance by Owner.
  - 1. Repair or cause to be repaired damaged roofing materials and leaks resulting from improper workmanship and faulty materials during term or warranty.
  - 2. Repair or cause to be repaired building materials and finishes damaged by leaks due to improper workmanship and faulty materials as reported during term of warranty.

#### **ASPHALT SHINGLES**

Section 07311-4

3. Bear costs by Owner, including attorney's fees, to enforce compliance with obligations of warranty.

#### 1.13 EXTRA MATERIALS

A. Provide 100 sq ft of extra shingles of each color used.

#### PART 2 - PRODUCTS

#### 2.1 ROOFING MATERIALS

- A. Asphalt Shingles:
  - 1. Manufacturers:
    - a. GAF Materials Corporation; Celotex Corporation, Inc. or equal product substitution under Section 01600
  - 2. Field Shingles: ASTM D3462; ASTM D3018, Type1; ASTM D3161, Type 1; granule-surfaced self-sealing laminate style shingle; fiberglass reinforced core; mineral granule surfacing; UL 790 Class A with UL 997 Wind Resistance Label; Timberline® Ultra® Shingles
    - a. Weight: 310 lbs/square.
    - b. Overall Dimensions: 12 inches x 36-15/16 inches.
    - c. Color: "Burnt Sienna Blend."
  - 3. Accessory Shingles: Factory-fabricated hip and ridge shingles; granule-surfaces; self-sealing; 13-1/4 x 10 inch size; 5-5/8 inch exposure; color to match field shingles; Universal Ridge Cap Shingles.
- B. Starter System: ASTM D3462; ASTM D3161, Type 1; granule-surfaced self-sealing starter course; 17 x 40 inch size perforated along longitudinal centerline; GAF Materials Corporation Universal Starter Strip Shingles or equal product substituted under provisions of Section 01600.
- C. Leak Barrier Membrane: ASTM D1970; self-sealing bituminous leak barrier surfaced with fine skid-resistant granules; 58 mils thick; GAF Materials Corporation WeatherWatch® Granular Surfaced Leak Barrier or equal product substituted under provisions of Section 01600.
- D. Underlayment: ASTM D226, Type I; water-repellent breather-type cellulose fiber building paper; GAF Materials Corporation Leatherback #15 Premium Roof Deck Protection or equal product substituted under provisions of Section 01600.

ASPHALT SHINGLES Section 07311-5

#### 2.2 RELATED MATERIALS

A. Plywood: When plywood sheathing is required, a minimum ½ inch CDX (C side out), smooth-surfaced exterior grade plywood with exterior grade glue shall be used. Rough-surfaced plywood or high fastener heads will require the use of Sarnafelt of equal behind the flashing membranes. Plywood shall have a maximum moisture content of 19% by weight on a dry weight basis.

#### 2.3 METAL FLASHING MATERIALS

- A. Galvanized Steel: ASTM A653; minimum 24 gauge unless otherwise indicated on Drawings; minimum 1.25 oz/sq ft galvanized coating.
- B. Lead: ASTM B749, Grade B; minimum 4 lb/sq ft.

#### 2.4 ACCESSORIES

- A. Nails: Standard round wire shingle type of hot-dipped zinc-coated steel; 10-1/2 to 12 gauge barbed or deformed shank; 3/8 to 7/16 inch diameter head; of sufficient length to penetrate 3/4 inch into roof sheathing or through thickness roof sheathing whichever is less.
- B. Plastic Cement: ASTM D4586, Type II; cutback asphaltic type with mineral fiber components, as recommended for sealing and coating flashings in buildings; free of toxic solvents; capable of setting within 24 hours at temperatures of approximately 75 degrees F and 50 percent RH.
- C. Protective Backing Paint: Bituminous type, black color.
- D. Sealant: ASTM C920, Type S, Grade NS, Class 25; polyurethane base; single component; moisture cured; non-sag; Sika Corporation "Sikaflex-1a," or equal product substituted under provisions of Section 01600.
- E. Solder: ASTM B32, 50/50 type.

#### 2.5 METAL FLASHING FABRICATION

- A. Fabricate sheet metal flashings in accordance with profiles and material thickness recommended by SMACNA except where more stringent requirements are indicated on Drawings or specified herein.
- B. Form flashings to profiles indicated on Drawings and to protect roofing materials from physical damage and to shed water.
- C. Form sections true to shape, accurate in size, and free from distortion or defects.
- D. Fabricate cleats and starter strips of same material as sheet, interlockable with sheet.
- E. Form pieces in longest practical lengths.
- F. Hem exposed edges on underside 1/2 inch; miter and seam corners.

#### **ASPHALT SHINGLES**

Section 07311-6

- G. Form material with lapped seams.
- H. Solder shop formed metal joints. After soldering, remove flux. Wipe and wash solder joints clean. Weather seal joints.
- 1. Fabricate corners from 1-piece with minimum 18 inch long legs; solder for rigidity, seal with sealant.
- J. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- K. Form and fabricate sheet metal work to adequately provide for expansion and contraction in the finished work.
- L. Back paint concealed metal surfaces and surfaces in contact with dissimilar metals and cementitious materials with protective backing paint to a minimum dry thickness of 15 mils.

#### **PART 3 - EXECUTION**

#### 3.1 EXAMINATION

- A. Examine condition of substrate to determine acceptability for installation. Verify that substrate conditions are acceptable for product installation in accordance with manufacturer's instructions and recommendations.
- B. Verify that roof penetrations and plumbing stacks are in place.
- C. Verify roof openings are correctly framed prior to installing work of this section.
- D. Verify nailable deck surfaces are dry, sound, clean, smooth and free of ridges, warps or voids.
- E. Do not begin work until unsatisfactory substrate conditions have been corrected.

#### 3.2 PREPARATION

- A. Cover cracks and joints in roof deck greater than 1/4 inch wide with 24 gauge sheet metal. Fasten metal to deck with annular ring shank nails staggered at 3 inches oc along edges.
- B. Broom clean deck surfaces under underlayment.

#### 3.3 UNDERLAYMENT INSTALLATION

- A. Install underlayment and leak barrier membrane in accordance with manufacturer's instructions and recommendations.
- B. Eaves: Install sheet metal drip flashing tight to fascia boards along eaves prior to installing underlayment. Lap and secure as specified under "Metal Flashing Installation" below.

- Section 07311-7
- C. Valleys: Install leak barrier membrane minimum 36 inches wide centered on valley. Install shingle fashion with ends lapped 6 inches; seal.
- D. Roof Deck: Install 2 layers underlayment over entire area not protected by valley membrane.
  - 1. Install sheets shingle fashion parallel to eaves so water sheds.
  - 2. Nail in place. Use only enough nails to hold underlayment in place until covered by shingles.
  - 3. Lap horizontal edges minimum 19 inches.
  - 4. Lap ends minimum 4 inches; stagger end laps between courses minimum 36 inches.
  - 5. Lap underlayment over valley membrane minimum 6 inches.
  - 6. At ridges and hips, lap each course of field underlayment over ridge or hip; lay 1 additional full width ply underlayment centered on ridge or hip.
  - 7. Where roof intersects vertical surface, extend underlayment up vertical surface minimum 4 inches.

#### E. Penetrations:

- 1. Vent Stacks: Install 24 inch square piece of leak protection membrane lapping over roof deck underlayment; seal tightly in place.
- 2. Vertical Walls: Install leak protection membrane extending minimum 6 inches up wall and 12 inches on to roof surface; lap over roof deck membrane.
- F. Rake Edges: Install metal edge flashing along rakes over roof deck underlayment. Lap and secure as specified under "Metal Flashing Installation" below.
- G. Weather lap and seal with plastic cement items projecting through and mounted on roof.

#### 3.4 METAL FLASHING INSTALLATION

- A. Weather lap joints minimum 2 inches and seal weathertight with plastic cement.
- B. Secure in place with nails at 8 to 10 inches oc. Conceal fastenings. Nail step flashings to roof deck only to permit movement at wall.
- C. Flash and seal work projecting through or mounted on roofing with plastic cement. Provide weathertight installation.

#### 3.5 ASPHALT SHINGLES INSTALLATION

- A. Install shingles in accordance with manufacturer's instructions.
- B. Install starter system along eaves.

- Section 07311-8
  - 1. Separate starter strip shingles into half pieces.
  - 2. Use full length pieces across eaves; do not trim end of first piece. For continuous eaves over 27 feet long, use 12 inch long piece very 20 feet.
  - At straight eaves, begin installing starter shingles either rake and in either direction. 3. Project starter shingles 3/8 inch over eave edge.
  - 4. At curved eaves, begin installing starter shingles at midpoint between hips and work to each hip. Install in straight lines parallel to tangent at midpoint; provide additional courses as requested. Project starter shingles 3/8 inch over eave; scrim and trim parallel to eaves.
  - 5. Secure in place with nails 3 to 4 inches above butt edge of shingle and 1 to 2 inches and 10 to 12 inches from each end.
  - C. Install shingles in straight coursing pattern using offset four-course diagonal method with 5 inch weather exposure.
    - 1. First Course: Start and continue with full shingles laid flush with starter course; lay from left to right or right to left.
    - 2. Second Course: Trim 6 inches from end of first shingle; position butt edge flush with top of wide cut outs in previous course resulting in 5 inch exposure. Continue with full shingles; lay from left to right or right to left.
    - 3. Third Course: Trim 11 inches from end of first shingle; position butt edge flush with top of wide cut outs in previous course. Continue with full shingles; lay from left to right or right to left.
    - 4. Fourth Course: Trim 17 inches from end of first shingle; position butt edge flush with top of wide cut outs in previous course. Continue with full shingles; lay from left to right or right to left.
    - 5. Subsequent Courses: Repeat first, second, third and fourth course sequence until roof is covered.
  - D. Strike chalk line every 6 courses to check parallel alignment with eaves.
  - E. Secure shingles in place with nails.
    - Use number of nails per shingle instructed by manufacturer but no less than 4 nails per shingle; place nails in accordance with manufacturer's installations for specific shingle.
    - 2. Drive nails flush with shingle surface; do not overdrive or underdrive.
    - 3. Ensure does not touch edge of double ply on bottom side of shingle.

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- 4. Ensure nails do not penetrate through bottom layer of sheathing at exposed eaves.
- 5. Ensure fasteners are placed so that they are not exposed in finished work.
- F. Valleys: Form closed cut valleys.
  - 1. Run first course of shingles from higher roof slope across valley minimum 12 inches.
  - 2. Run succeeding courses of shingles from lower roof slope across valley minimum 12 inches; nail not closer than 6 inches to center of valley.
  - 3. Ensure shingles are not damaged being formed.
  - 4. Run shingles from upper slope into valley and trim 2 inches from valley centerline.
  - 5. Embed each clipped end shingle in plastic cement.
  - 6. Ensure no fasteners are paled within 6 inches of valley centerline.
- G. Hips and Ridges: Cap hips and ridges with manufacturer's factory fabricated hip and ridge shingles.
  - 1. Bend hip and ridge shingle centered over hip or ridge; position to maintain exposure specified for field shingles.
  - 2. Secure in place with nails located 5-5/8 inch from bottom of shingle and 1 inch from each edge; ensure nails with be covered by subsequent hip and ridge shingle.
- H. Coordinate installation of roof mounted components or work projecting through roof with weather tight placement of counterflashings.
- I. Complete installation to provide weather tight service.

#### 3.7 PROTECTION OF FINISHED WORK

- A. Protect installed roofing from foot traffic until completion of project.
- B. Protect roof area not completed by end of each workday from moisture and contaminants.

**END OF SECTION 07920**